UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
WASHINGTON 25, D. C.

In Cooperation with State, Federal and Other Agencies

COTTON INSECT CONDITIONS - JUNE 1, 1951
(Third Cotton Insect Survey Report for 1951)

Reports indicate that thrips and cutworms have caused more damage to cotton during May and June than all of the other cotton insects, and insecticides have been used more generally for their control than in any previous year.

Thus far the boll weevil has been reported only in limited areas.

R. W. White, Assistant Division leader, Pink Bollworm Control, wrote on May 29: "It is already apparent that we are faced with a heavy and general infestation of the pink bollworm in the early fields, and considering the unusually large amount of very late cotton, the possibilities of a heavy build-up of pink bollworm population late in the season is very obvious."

The great value of the early and thorough cutting and clean-up of cotton stalks in Cameron County in August, 1950, is shown by the fact that the boll weevil and pink bollworm populations are much lower in that county than they were a year ago. Only 10% of the fields examined were infested with pink bollworms as compared to 19% infested in May, 1950. Pink bollworms were found at the rate of 9 to 100,000 blooms in May 1951, as compared to 51 pink bollworms to 100,000 blooms in 1950.

Cotton insect survey reports or press releases relating to cotton insect conditions are being issued in the Carolinas, Mississippi, Louisiana, Texas, Arkansas, and other States.

INSECTICIDES

ARKANSAS: Gordon Barnes, Extension Entomologist, wrote on May 22: "There is a sulphur shortage on. If insecticides are in heavy demand this year, the organics may come out without the 40 percent sulphur in the formulation."

OKLAHOMA: C. F. Stiles, Extension Entomologist, wrote on May 30: "Many of the farmers are unable to purchase insecticides while some of the dealers in certain sections of the State have a little surplus but it is just too far to be shipping from one part of the State to the other."

BOLL WEEVIL

NORTH CAROLINA: Cotton News Letter No. 9, issued by the Extension Service on May 25, states that 8 boll weevils were found in the examination of 3900 cotton plants in 8 counties. The weevils were found in Anson, Cumberland, Hoke, Robeson, and Scotland Counties.

Excerpts from the Cotton News Letter, No. 10, issued on June 1:

"Boll Weevil Activity: Weevils are showing up in fields in the Scotland-Robeson part of the state. Plants in some fields will be at the squaring stage in the region by the week of June 3. Mr. Rabb found weevils in 5 fields examined this week in Robeson County. About the same situation seems to exist in Cumberland, Scotland, and Hoke Counties."

"In North Carolina last week, weevils were found in 9 out of 15 fields in Hoke, Scotland, and Robeson Counties. Weevils were found at the average rate of 90 per acre compared to 600 to 1200 per acre last year at this time."

"The dry and cool weather seems to have delayed weevil activity."

SOUTH CAROLINA: J. G. Watts, Edisto Experiment Station, Blackville, wrote on May 21: "Boll weevils have been extremely hard to find on cotton so far."

L. C. Fife, Florence, reported that no boll weevils have emerged in the hibernation cages through May 25. The emergence of weevils in the hibernation cages through June 1 during recent years has been as follows:

Year	Weevils	Year	Weevils
1951	0	1949	381
1950	488	1948	7
		1947	139

From the 1/5-acre trap plot of early cotton only one boll weevil had been collected by May 25. The number of weevils collected in this trap plot through June 1 during recent years has been as follows:

Year	Weevils	Year	Weevils
1951	1	1948	260
1950	860	1947	668
1949	654		

Boll weevils were found in 5 of the 28 cotton fields examined in Florence County during the week ending May 25 at the rate of from 30 to 60 per acre. During this period in 1950 boll weevils were found at the rate of from 600 to 1200 per acre. During the week ending June 1, twelve fields were examined in Florence County. No weevils were found in 8 fields and in the four infested fields weevils were found at the rate of 30, 160, 200, and 400 per acre.

ALABAMA: Excerpts from letters from W. A. Ruffin, Extension Entomologist:

May 22: "The weevil population is much lower than it has been for a number of years in Alabama.....I have not been able to find any live weevils so far on young cotton in the State. However, I have not been to the southern part of the state during the past two weeks."

May 25: "I am glad to report that the cotton insect situation in Alabama looks very much better to us than it did this time a year ago. You have received reports of Fife's samples of weeds trash in Madison and Marshall Counties, Alabama. He reported 161 weevils per acre (of surface trash) were found in Madison and 484 weevils per acre in Marshall County. During the past two weeks Dr. Grant has examined most of the fields of cotton where he is to do his test work this summer. He found an average of about 6 weevils per acre as compared to 200 per acre at the same time in 1950."

F. S. Arant, Auburn, wrote on May 22: "We have been making examinations of cotton in several parts of the State for boll weevil during the last two weeks. In all, we have made examinations in 69 places in five counties. We have found only 2 live weevils, these in Autauga County. None were found in Elmore, Lamar, Limestone, and DeKalb Counties. The average for all the counts is approximately 0.3 weevils per acre. Of course, we realize that the cool weather has kept weevils in hibernation and we do not yet have a fair estimate of what the population will be. On the other hand, large numbers were found on cotton last year, particularly in north Alabama."

MISSISSIPPI: The First Cotton Insect Survey Report issued by the State Plant Board of Mississippi on May 14 stated: "Examinations made by Board inspectors and Federal entomologists on 130 fields in 27 counties revealed only 4 fields infested with weevils. A field in Lamar County and another in Montgomery County each had 50 weevils per acre, one in Jones County 100 per acre, and one in Walthall County 500 per acre."

Clay Lyle, State College, wrote on May 22: "We had reports on 150 farms but only 6 had weevils, each with 50 weevils per acre. We have had more than 4 weeks' drouth and cotton is dying in many cases, with poor stands of small plants. As a result we have few weevils out of hibernation yet, or at least that seems to be the case."

During the week ending May 25 E. W. Dunnam and S. L. Calhoun, Stoneville, reported that no boll weevils were found in the examination of 81 fields in 16 Delta Counties. "A year ago at this time about 53 percent of the Delta fields were infested at the average rate of 315 weevils per acre."

During the week ending June 1, no boll weevils were found in the examination of 105 cotton fields in 16 Delta Counties, whereas during this period last year boll weevils were found in 59 of the 108 fields examined at the average rate of 171 per acre.

ESTIMATED NUMBER OF BOLL WEEVILS PER ACRE IN INFESTED FIELDS IN SPRING COUNTS DURING 13 YEARS, WITH RECORDS OF PREVIOUS FALL POPULATIONS AND THE MINIMUM WINTER TEMPERATURES.

Year	Weevil Population Previous Fall	Minimum Temperature Previous Winter	Weevils per acre in infested Fields May 18	May 25	June 1
1939	Heavy	24° F.	0	594	220
1940	1/2 normal	0	0	0	0
1941	Light	21	0	100	70
1942	Heavy	8	10	39	32
1943	Light	9	150	91	92
1944	Above av.	16	167	168	136
1945	Average	17	0	0	100
1946	Heavy	21	50	88	113
1947	Heavy	24	0	50	75
1948	Light	3	0	100	81
1949	Heavy	0	106	209	363
1950	Heavy	21	138	315	171
1951	1/2 normal	- 5	0	0	0

LOUISIANA: Records obtained from boll weevil hibernation cages at Tallulah through May 31 indicate low weevil survival. During the past 11 years boll weevil survival in hibernation cages during May was as follows:

PERCENT SURVIVAL AS OF

YEAR	MAY 4	MAY 10	MAY 17	MAY 24	MAY 31
1951	.02	.02	.02	.02	.02
1950	2.74	3.94	5.16	6.64	8.10
1949	2.30	2.68	2.72	3.18	3.54
1948	.06	.12	.16	.20	.32
1947	.14	.22	.56	.80	.92
1946	.72	1.54	4.58	6.28	6.78
1945	1.00	1.96	4.46	5.56	7.84
1944	.14	.30	.58	1.16	1.38
1943	.16	.26	.34	.38	.60
1942	.00	.00	.02	.04	.06
1941	.82	4.18	4.78	6.80	8.88

During the week ending May 18, boll weevils were found in cotton fields in Madison Parish at the rate of 52 per acre. During the same period in 1950, they were found at the rate of 144 per acre, and in 1949 at the rate of 49 per acre.

During the week ending May 24, boll weevils were found in cotton fields at the rate of 74 per acre, as compared with 276 per acre in 1950, 76 in 1949, 13 in 1948, 55 in 1947, and 271 in 1946.

In Madison Parish the estimated number of boll weevils per acre during the week ending May 31 over the past 11 years has been as follows:

YEAR	WEEVILS PER ACRE
1951	77
1950	484
1949	145
1948	82
1947	107
1946	314
1945	108
1944	72
1943	205
1942	41
1941	130

Apparently boll weevil emergence has been checked or retarded during May 1951 because of dry, cool weather.

ARKANSAS: Gordon Barnes, Extension Entomologist, wrote on May 22: "No reports have been received of weevils in cotton fields in Arkansas yet this year. The first authentic record of appearance of weevils in Arkansas cotton fields last year was on May 19. A. J. Williams found them in Clark County."

TEXAS: Ewing, Gunter, and Johnston reported from College Station on May 22 as follows: "Weevils have been found in considerable numbers in certain fields of Wharton and Fort Bend Counties in the Upper Coastal area. They are probably plentiful in most fields next to hibernation quarters in the counties immediately south, north and west of Wharton and Fort Bend Counties, although no inspections have been made to verify this. In Wharton and Fort Bend Counties, 10 fields that had received early-season treatments averaged 90 weevils per acre, and 11 fields that had not been treated averaged 255 weevils per acre."

K. P. Ewing and C. R. Parencia reported from Waco on June 1: "Hibernation Cages: No boll weevils were removed from the hibernation cages during the week. Only 1 weevil has been removed from the cages to date. The percent survival at this date for this and previous years, (which figure from screen wire cages is probably of very little if any value following a winter such as existed during 1950-51) and total seasonal survival is shown in the following table:

Year	Survival as of June 1	Total seasonal survival, percent
1940	0.12	0.2
1941	16.78	21.32
1942	0.715	0.715
1943	0.225	0.225
1944	2.64	2.78
1945	2.78	3.42
1946	1.20	1.32
1947	0.14	0.18
1948	0.22	0.22
1949	0.06	0.06
1950	3.24	4.3
1951	0.02	

"Field Inspections: A total of 32,750 plants were inspected in McLennan and Falls Counties during the week and weevils were found at an average rate of 24 per acre. In 45 untreated fields weevils were found at an average rate of 40 per acre. Weevils were found at the rate of 2 per acre in 28 treated fields. A fuller explanation is needed to properly interpret the above figures. During the Fall of 1950 early stalk destruction was practiced in several areas of McLennan and Falls Counties. This, no doubt, had an influence on the number of weevils that went into hibernation and the survival. The winter of 1950-51 was extremely cold in this area, but it is definitely known that in deep wooded and ideal hibernation areas weevils survived in large numbers. On the other hand, in the prairie country or where hibernation quarters were thin, weevils are not appearing in cotton fields in large numbers. Twenty out of 45 unpoisoned fields were found infested with weevils. As stated above, the uninfested fields were mostly in the open territory or where fall destruction of stalks was practiced. The 20 infested fields were found to be infested at the average rate of 69 weevils per acre. During the corresponding week of last year weevils were found at an average rate of 64 per acre in 39 fields. In 23 untreated fields weevils averaged 93 per acre and 16 treated fields averaged 23 per acre. Untreated fields of early planted cotton near hibernation quarters are losing most of their first squares to weevils while fields which have been poisoned are losing little or no fruit."

PINK BOLLWORM

TEXAS: Because of the serious pink bollworm situation that developed during 1950 when this pest spread to many counties in northern and eastern Texas, and also into Louisiana and Oklahoma, more people are asking "What is the pink bollworm situation now?"

The first pink bollworm of 1951 was taken from a cotton bloom in Starr County on April 26; another one in Cameron County on April 27. In 1950 the first pink bollworms were found in cotton blooms in Hidalgo County on April 10. This year no pink bollworms were found in that County through April 28. By May 5 pink bollworms were found in 8 of the 9 fields examined in Starr County, in 5 of the 35 fields examined in Hidalgo County, and in 5 of the 37 fields examined in Cameron County.

During April the Division of Pink Bollworm Control reported the finding of living pink bollworms in old cotton bolls, locks, lint or seed on the soil surface from the crop of 1950 in Jim Hogg, Live Oak, Refugio, Starr, and Zapata Counties. Live pink bollworms were found in bolls on old standing stalks from last year's crop in Dimmitt and Maverick Counties.

Infestation records indicate that the pink bollworms are about twice as abundant in Hidalgo and Starr Counties as they were a year ago. The pink bollworm situation appears to be serious in 14 other counties of southern Texas as follows: Atascosa, Bee, Brooks, Dimmit, Duval, Jim Wells, Kleberg, Live Oak, Maverick, Nueces, San Patricio, Webb, Zapata and Zavala.

LOUISIANA: No pink bollworms were found during April 1951.

THRIPS

NORTH CAROLINA: Cotton News Letter No. 9 issued May 25 stated: "Most fields in the State show some thrips and aphids. A few fields in the Charlotte area showed infestations of thrips which are causing the young leaves to be curled, ragged and deformed."

Cotton News Letter, No. 10, issued June 1, stated: "Thrips do not appear to be a problem except in the Charlotte and Shelby areas."

SOUTH CAROLINA: J. G. Watts, Entomologist, Edisto Experiment Station, Blackville, wrote on May 21: "Considerable thrips injury has occurred in the Piedmont area and some, I understand, in the Pee Dee, but in our section of the state only limited signs of their presence have been evident."

L. C. Fife, Florence, reported on May 25 and on June 1: "Very little thrip injury has been noted."

MISSISSIPPI: E. W. Dunham and S. L. Calhoun, Stoneville, reported on May 25: "Light damage from thrips in 67 of the 81 cotton fields examined in 16 Delta Counties but some spraying was underway for their control. On June 1 thrips were reported in 73 of the 105 fields examined but only 5 fields had heavy infestations."

LOUISIANA: R. C. Gaines, Tallulah, reported for the week ending May 18: "Thrips injury has increased somewhat during the past week." On May 24 he reported: "Dry conditions with additional cool nights have prevailed during the past week. Such conditions have been most favorable for rapid thrips development. Thrips may destroy stands in many fields if rains do not occur soon." On May 31, he reported that hot, dry weather still prevailed. "Thrips have continued to cause damage during the past week. Thrips and boll weevils are the only insects of importance on cotton at this time, but boll weevil emergence has been retarded by the unfavorable weather."

ARKANSAS: On May 22, Gordon Barnes, Extension Entomologist, wrote: "Dr. Charles Lincoln was in Crittenden County the week of May 7 and found thrips extremely scarce in cotton. Flower thrips on clover blossoms were found at three to the head, which is considered light when compared to other years. I scouted a field in Lawrence County on May 10 and found thrips present, but numbers were well below that required for treatment. The weather has been dry with cool nights, which is ideal for thrips development. In the Shreveport area thrips are present in numbers, and Mr. R. C. Gaines reports that thrips have been found in all fields examined in the Tallulah area. Observations have not been general enough to make any exact statement, but apparently thrips are not general or widespread."

TEXAS: In the report on the Cotton Insect Situation in Texas, issued on May 22, Ewing, Gunter, and Johnston report: "Thrips are migrating to cotton in damaging numbers in south-central, central, and east Texas counties and in some localized areas in north and northeast Texas. Damaging infestations of thrips which need immediate control were reported in Hunt, Rockwall, Kaufman, Lamar, Fannin and Delta Counties in north-central Texas and in Van Zandt, Red River, Bowie, Hopkins, Smith and Panola Counties in northeast Texas. One area of about 1800 acres 5 miles south of Kemp in Kaufman County showed a high average infestation capable of causing severe damage, silvering and curling of the leaves on small seedling cotton. Another area of approximately 4000 acres south of Paris in Lamar County had a damaging infestation on cotton in the 2-leaf stage. These fields need application of insecticide immediately to prevent severe damage from thrips."

El Paso County: L. W. Noble, reported on May 11: "Although high winds have damaged cotton, causing an appearance resembling thrips injury, the thrip infestation is very low. Many fields with cotton in the 2-4 leaf stage show thrips populations of less than one per plant. The first cutting of alfalfa hay, which is just getting underway, will cause a heavy thrips migration to cotton within the next week or two."

McLennan and Falls Counties: K. P. Ewing, et al reported on June 1: "A few untreated fields of April planted cotton showed increases in thrip infestations. Most of the May planted cotton is taking some injury and some of these fields have heavy infestations."

OKLAHOMA: C. F. Stiles, Extension Entomologist, wrote on May 31: "Thrips have been found damaging cotton in eastern Oklahoma during the past few days. Especially is this true in Muskogee, McIntosh, and Pittsburg Counties. No doubt they are also causing damage in the Red River counties of southeastern Oklahoma since they are present just across the river in Texas and are doing damage."

LEPIDOPTEROUS LARVAE

SOUTH CAROLINA: J. G. Watts, Edisto Experiment Station, Blackville, wrote on May 21: "There was one record of rather serious damage to seedling cotton in Berkeley County by the 'armyworm' following blue lupine. Some thirty acres were reported to have been destroyed."

MISSISSIPPI: Dunnam and Calhoun reported: "Lepidopterous larvae (not cutworms) damaging cotton in 3 of 105 cotton fields examined in 16 Delta Counties."

CUTWORMS

MISSISSIPPI: E. W. Dunnam and S. L. Calhoun, Stoneville, reported that for the week ending May 25, cutworm damage was observed in a few Delta fields and these insects are increasing in number in Washington County. Some spraying is being done for their control.

LOUISIANA: R. C. Gaines reported on May 24: "Cutworms have destroyed cotton in several fields in Madison and Tensas Parishes."

ARKANSAS: Gordon Barnes, Extension Entomologist, wrote on May 22: "Cutworms are extremely late this year. Their numbers have been light so far. A close check should be made during the next 10 days in fields adjacent to legumes or in fields which have followed a cover crop of vetch or other legumes. One field in Lafayette County has received treatment for cutworms."

COTTON APHID

NORTH CAROLINA: Cotton News Letter, No. 10, issued June 1: "Aphids are present in most fields in the state but do not seem to be causing serious injury."

SOUTH CAROLINA: J. G. Watts, Entomologist, Edisto Experiment Station, Blackville, wrote on May 21: "Small populations of plant lice have occurred rather generally but in no case observed have they done any damage."

L. C. Fife, Florence, reported on May 25 and June 1: "Very light aphid infestations are found in most fields; no serious damage has been observed."

MISSISSIPPI: E. W. Dunnam and S. L. Calhoun, Stoneville, reported on May 25 that light infestations of the cotton aphid were found in 65 of the 81 fields examined in 16 Delta Counties; in June they reported aphids in 70 of the 105 Delta fields that were examined but only 2 fields had heavy infestations.

LOUISIANA: R. C. Gaines reported on May 24 from Tallulah: "Aphid infestations are spotted and appear to be less in number than usual."

MISCELLANEOUS INSECTS

TEXAS: May 22: Reports of aphid (plant lice) damage have been few. Scattering reports have been received of cutworm and grasshopper damage. Fleahoppers are causing only minor damage in scattered locations so far this year.

MISSISSIPPI: Tarnished plant bugs were reported in 4 fields and grasshoppers in 2 fields during the examination of 105 cotton fields in 16 Delta counties during the week ending June 1.

THE SIX-SPOTTED LEAFHOPPER, MACROSTELES DIVISUS (UHL.)

MISSISSIPPI: On May 23 Clay Lyle, State College, wrote to Mr. C. F. W. Muesebeck, in charge of the Division of Insect Identification:

> "Under separate cover in a mailing tube we are sending you some nymphs and adults of Cicadellidae in alcohol. These specimens were collected from cotton plants in Leflore County by Mr. O. T. Guice, Jr. They are reported to have destroyed 4 or 5 acres of cotton and damaged over 40 acres in a 100-acre field."

On June 4, Mr. Muesebeck replied:

> "Mr. David A. Young, who is handling our work on the leafhoppers during Dr. Oman's tour of duty with the Army, reports that the specimens sent with your letter of May 23 are Macrosteles divisus (Uhl.). He indicates that we seem to have no record of this species as a serious cotton pest."

This report is of unusual interest because we do not recall that the six-spotted leafhopper has been reported as causing serious injury to cotton. The six-spotted leafhopper, also known as the aster leafhopper, has been reported as transmitting diseases of many plants, including lettuce, tomatoes, carrots, potatoes, aster, and phlox. For the benefit of those who are not acquainted with Macrosteles divisus, the statement concerning this insect on page 186 of "Common Insects of Kansas" by Roger C. Smith, et al, is quoted:

> "One of the smallest, common, light green to translucent, yellowish-green leafhoppers occurring in grassland, weeds, corn, alfalfa and on many other plants. There are six, tiny, black spots on top of the yellowish-green head. Species measures about 1/8 inch long; occurs practically all year, since it winters in the adult stage. This leafhopper is the disseminator of the yellows disease of asters, tomatoes and some other plants."

R. K. Fletcher reported the six-spotted leafhopper under the name Cicadula sexnotata (Fall.) as occurring on cotton in Texas during August in Bottomland but not common (Journal of Economic Entomology, Volume 30, No. 6, Dec. 1937, page 863.) E. W. Dunnam has collected it on cotton at Scott, Mississippi (June 18, 1941).

COTTON INSECTS IN THE LOWER RIO GRANDE VALLEY OF TEXAS

Excerpts from Cotton Insects Survey Report No. 10 from the Lower Rio Grande Valley, by A. N. White, issued at San Benito, on May 17:

"The Flea hopper infestation is still very light, although a few are being found in scattered fields throughout the Valley."

"Bollworms are the big threat but they are not general at this time. A few fields in the McAllen-Mission area and some fields near Elsa and Westlace need bollworm control."

"Aphids have increased in several fields in Cameron County and some fields are in need of insecticide control. Aphids are present throughout the Valley but in most instances they are being satisfactorily controlled by their natural enemies."

Excerpts from Cotton Insects Survey Report No. 11 from the Lower Rio Grande Valley, issued on May 24, by A. N. White, San Benito:

"Aphids are more widespread and are probably doing more damage than any other insect."

"There has been little change in the bollworm infestation this week, and it is as of now rather light."

"Thrips are causing considerable damage in some rather old cotton this week, particularly in the San Benito-Rio Hondo area. In at least one field east of Rio Hondo, they are ragging the leaves, causing severe stunting, and the shedding of both squares and young bolls."

"Flea hoppers have increased some during the past week, but in general, the infestation in the Valley is still rather light."

"Careless weed webworms, or Garden webworms, are being found in several areas and are giving severe damage in some fields in the western part of Hidalgo County."

"Boll weevils are still very scarce."

IRRIGATED AREAS OF THE SOUTHWEST

ARIZONA: W. A. Stevenson reported on May 25 that Lygus bugs continued to build up rapdily in alfalfa and early infestations are expected in cotton grown in proximity to alfalfa. On cotton the Lygus population continues low.

A light infestation of beet armyworms on cotton was reported in the Continental area of the Santa Cruz Valley. A total of 1500 acres of cotton had already been dusted in that area for thrips control. Dusting of cotton was also underway in other parts of the Santa Cruz Valley. In Graham County thrips were fairly abundant on cotton and some dusting had been done for their control.

CALIFORNIA: The second cotton insect survey report included information concerning the Pacific mite and two-spotted mite as pests of cotton. A letter from Gordon L. Smith, dated April 17, contains the following:

"In some of the vetch fields where very little water was supplied by irrigation and the rainfall has been 3" or less for the season, the Pacific mites were so numerous that they crawled up old cotton stalks and were very numerous in webbing on the tops of these. These dense masses of mites and webs also occurred on other plants and on the soil, etc. It's just a little early to give reports from here on insect pests of cotton. Lygus bugs are usually not a serious problem in dry years, such as it has been in the lower San Joaquin Valley."

Prepared June 7, 1 9 5 1. **********